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GENESEE FARMER.

SATURDAY, JULY 1, 1837.

Brief Hints for July.

A subject too much neglected during the middle of summer is the extirpation of weeds. If the nourishment which goes to support the weeds on some farms were applied to the crop, the owners would soon get rich. Weeds are as injurious to the crop as a herd of intruding cattle, and should therefore be removed with as much determination.

There is one rule which will apply in destroying all weeds of whatever kinds; this is, that they cannot live if they cannot obtain access to the air. Hence weeds the most difficult of exterpation are soon routed by cutting them off as fast as they appear above ground, or by burying them repeatedly with a plough.

Repeated ploughings for destroying weeds is best whenever they have obtained possession of the ground, as in case of Canada Thistles, St. Johnswort, and some others; and indeed it is much better to devote the ground a year or two to clearing, where they have spread extensively, than to lose two thirds of the use of it by them perpetually.

Some weeds are easily removed with a common hoe, as for instance mulliens, thistles, &c., which infest pastures: cutting them off at the surface of the ground generally destroys them at once. Docks are very easily removed when the ground is softened with rain, by pulling them up.

In order to prevent the trouble of destroying a field of weeds, they should be watched and rooted out at their first appearance, when it will not cost a thousandth part of the labor. Canada thistles, milk weeds, ox-eye daisy, couch grass, charlock or field mustard, and others, whenever they first appear, should be immediately destroyed.

Whole fields are frequently seen covered with a luxuriant crop of the large field thistle; if they were cut and raked with a horse rake into large heaps they would make excellent manure.

Farmers should use every means practicable to obtain and preserve all the manure that can be done—they should recollect that a good load of manure properly applied, is better than a silver dollar. What most needs attention now, is to preserve the manure which remains unspread during summer, to prevent its wasting by fermenting and evaporation. This is effected by covering it with a coating of earth mixed with about one quarter *lime.*

Farm implements should always be of the best kind, even if they cost considerably more; if a workman with a good tool can do one-third more labor, he will soon repay the additional cost.

The advantages of frequent stirring of the earth among crops have been sufficiently proved;—"a rusty hoe in summer is a sign of a poor farmer." But the practice of *hilling* in cultivating hoed crops, is injurious; and it is found by experience that in all common cases, preserving the surface of the ground flat or nearly so is much preferable. For this reason the *cultivator* should be used in preference to the one-horse plough; and if the rows have been planted straight and even, all the weeds may be cut up by it within two or three inches of the plants.

Mowing should not be commenced until the stalks of grass begin to change a little to a brown color, or when the seeds are approaching maturity. A greater quantity of nutriment is then contained, the hay is sweeter to the taste and is not so tough as otherwise, and the hay is more easily dried. Grass beaten down by rain, should however be cut before it becomes injured in this way while uncut.

A great defect in curing hay, and more especially clover, is drying it too much in the sun. The more improved practice is to dry it partially in the swath and finish by what is termed the *sweating* process, or drying in small cocks, the heat of a very slight fermentation assisting. The labor of spreading is thus saved, there is little injury from exposure to dew, and the thin leaves and succulent stalks become equally dried together. Where this plan has been tried, many successive days of rainy weather have not prevented the making of excellent hay: and indeed while the outside of the cock is wet by the falling rain, the interior has been constantly drying by the slight heat generated. Every farmer should at least try this method; and every one who tries it fairly, adopts it.

We still see, in many places, the common hand rake employed to collect the hay on the meadow. This should be no longer tolerated. When it can be raked by a horse with one fifth the expense, it is surprising that so many adhere to the old practice. If farmers are unwilling to procure a revolving rake, let them at least provide themselves with the common horse rake. The cost is only two dollars, and it will pay for itself in less than half a day, and in half an hour if a shower of rain is coming upon a crop of new hay. Attach the draught ropes to the outer teeth cut to about one third the length of the others, and no difficulty will be found in managing it.

We last year saw a meadow of fifteen acres raked with a common horse rake, in about six hours of time actually employed, a part of which yielded three tons to the acre; and the whole of the hay was drawn to the stack, chiefly from the winrow, by the horse and rake, sufficiently fast to keep a strong active man (who had previously laughed at the plan) hard at work all day to pitch it on the stack. By regulating properly, by means of the handles, the pitch of the teeth, loads were collected which were a good load for one horse to draw. One man only (without any rider) was sufficient to manage it. It abridged the labor so much, that cutting the grass was more than two-thirds of the work done on the meadow. On extensive and smooth meadows, we would by all means recommend the revolving rake in preference to any other, and the hay sweep (described last year in the Farmer) to collect and draw it to the stack or place of deposit. But the common horse rake may be used on any meadow, if not intolerably rough.

Mowers should commence work by four o'clock in the morning, when the air is cool and the grass moist, and then they may rest at the heat of the day.

In harvesting grain, it is much better to cut it a few days before it is perfectly ripe, than to allow it to stand too long. If cut when not entirely ripe, and bound up *before the straw becomes dry, it will derive nourishment from the stalk* sufficient to ripen it before the sheaves become thoroughly dry.

The great advantages of cutting early are, the the grain is not wasted by shelling, the straw is worth more, and it enables the farmer to drive business and prevent losses from bad weather and other delays.

Lodged and rusty grain should in all cases be be cut as soon as admissible, as little is gained by suffering it to stand long.

Whenever it is necessary to leave grain upon the field after it is cut, it should be put up so as to withstand any rain without injury. This may be easily effected by placing about six sheaves closely together, pressing their heads to a point, and capping the whole with a seventh. The cap is made by binding a sheaf firmly near the lower end and spreading the straw on all sides by breaking it down over the band.

At this busy season of the year, the garden must by no means be neglected—the ground must be kept clear from weeds,—plants which need it watered in dry weather, always in the evening to allow the water to penetrate the soil before evaporating;—herbs, as they come in flower, must be cut and dried for future use; they must be cut in dry warm weather, and always dried in the shade;—fruit trees which bear too thick must have their fruit thinned, if it is wished to have it of any value as to flavor. In the flower garden, seeds must be gathered, labelled, and preserved as they ripen, and the roots of bulbous plants taken up as the tops wither and die; they are best preserved by drying them somewhat, in small heaps covered with sand or dry soil to protect them from the rays of the sun. As soon as taken up they should be labelled to prevent mixing.

Genesee Valley Canal.

The suspension of specie payments by the Banks having frustrated the proposed arrangement for the sale of stocks to city institutions, the vigorous prosecution of the work *along the line* of this canal must be deferred till the stocks can be otherwise disposed of. Such securities cannot long remain without purchasers; and we doubt not that, as capital is now beginning to seek safe investments at fair interest, in preference to the gambling and shaving operations of Wall-street, &c. the Commissioners will soon be able to realize funds for prosecuting *the whole work* to completion with all reasonable despatch. Meantime, a spirited commencement is made in the enterprize, by the letting of contracts for a section of the canal from Rochester southwardly—for which the Commissioners have funds available, and the construction of which is desirable for affording River-boats better access to the city from above the feeder dam, as well as in furnishing opportunity for passing canal-boats across the river at the same point, in case of accident to the present Aqueduct while the new Aqueduct is being built—(the present feeder on the east side of the river affording means of passing from the Erie Canal southwardly to a point opposite where the first section of

the Genesee Canal will be made to lock into the river at the feeder dam—furnishing a certain though circuitous navigation for the Erie Canal Boats in case of accident to the Aqueduct, as above mentioned—a plan urged upon the Commissioners by a memorial from some of our citizens when serious danger threatened the Aqueduct nearly four years ago, which danger was temporarily averted by various repairs of wood and stone work.

Mr. MILLS, the chief Engineer of the Genesee Canal, being absent along the route, we are indebted to Mr. DEXTER, assistant Engineer, for the following particulars:

The contracts have all been taken on reasonable terms. The contractors are to begin the work on or before the 1st of July. The new Feeder-Dam across the Genesee River is to be finished by the 1st of December next. A guard-lock is to be completed by the 1st of October next. The bridge contractor, with two exceptions, has to the 1st of November to complete his work. The excavation and embankments are to be done on or before the 1st of June next—when the canal thus far is to be made navigable, if necessary.

Horticultural Festival.

The summer meeting of the Horticultural Society of Ontario and Wayne counties, will be held at the Hotel in the village of Geneva, on Tuesday, the 11th of July, when the usual premiums will be awarded. The committee of arrangements consists of *Joseph Fellows, B. Whiting, A. W. Langdon* and *W. S. Dezeng.*

From the British Farmers' Magazine.

Manufacture of Beet-root Sugar.

[The following full account of the various processes required for the manufacture of beet sugar, is taken from the last number of the British Farmers' Magazine. It was compiled and translated from the works of M. Dubrunfaut, and others, the latest and best authorities on this subject, by Samuel Taylor, Jr., for the work from which we copy it. Much interest is now felt in England, as in this country, in regard to this new branch of industry; and it is to be presumed that as this essay is the most recent, it embraces the newest and most valuable improvements. Directions on this subject, from several authors, have already been published in this and other agricultural journals in this country; but they generally are too concise, and those which are most full, and also proceeded from the highest authority of their time, (Chaptal's,) were written before the latest improvements in this manufacture were known, and before its now ascertained great profits were even suspected to be obtainable. Therefore, it is supposed that the publication of this treatise is not superfluous, and it is hoped that in presenting it to our readers, we shall render some service to all who desire to commence this new business.—*Ed. Far. Reg.*]

Introduction.

We will now proceed to notice the methods by which the greatest quantity, and the best quality, of sugar can be obtained from beet root.

Sugar is a component part of this root, and that method of extracting it is to be preferred, which destroys the least portion of it in the course of the operation; for, in the present state of the art, it is undeniable that a certain quantity is destroyed.

Most of the beet sugar manufacturers refine their own sugar; a method not approved of by the author. The art of refining is very complex, and difficult to manage, and requires a long and intimate acquaintance with practical chemistry. The agricultural manufacturer, therefore, should confine his attention to the making of raw sugar only, and that of as good a quality as possible, to sell to the refiner. It is only when the making of brown sugar is finished that refining can begin. Consider then, the time which must elapse before a manufacturer can realize any profit upon his business: for it will be remembered that the process of refining lasts for six or seven months, or the whole of the season of vegetation. From the moment, therefore, that he sows his field, he is but then finishing the manufacture of the preceding crop into brown sugar. Then comes the refining, which does not terminate till six months after; so that he has to wait fourteen or fifteen months before he can begin to sell his sugar, and probably eighteen months before the whole is sold. Add to this a credit of three or four months usually given to the buyers, and it will form a total of twenty-two months, or thereabouts, before he can expect to make his returns; whereas, if he sells the raw sugar, he will be able to begin to sell in seven or eight months after the seed time, and will have sold the whole in a year after the same seed time.

Those manufacturers would be more at their ease as to capital, who would first use a part of their own crops in their manufactory, and would afterwards treat with the little farmers for what they could spare of *their* produce. Thus those who have not the means of forming an establishment of their own, will yet participate in some of the advantages of beet culture, the pulp of which they can re-purchase of the manufacturers.

I shall next proceed to describe the several operations connected with the manufacturing department, according to the order in which they follow each other.

CHAP. I.

Cleaning of Beet Roots.

When the roots are to be washed, it is not necessary that so much pains should be taken in scraping and cleaning them by hand; but when it is not intended to wash them, the cleaning ought to be particularly attended to. This work is mostly performed by woman and children. They are furnished with a sharp knife, two or three inches broad, and about ten inches long, with a suitable handle; and thus provided, they seat themselves near the heap of roots to be cleaned, and scrape each root separately, taking especial care not to leave any stones or dirt adhering to its surface. When a root is thought to be to large to enter the rasp properly, it should be cut in two or four pieces by the cleaner, according to its size. This should be done lengthways of the root.

The cleaning should take place in some spot convenient for the rasping mill and presses, and should be large enough to hold a quantity of roots sufficient to supply the manufactory for at least four or five days, and yet leave sufficient room for the cleaners to work in with comfort. After cleaning, the roots are thrown into a small open basket with ears, (like our turnep skeps.) They are then carried by the women to the rasp, where they leave the full baskets, and bring back empty ones. Two women well used to the work will clean, and carry to the rasp, three or three and a half tons of roots, in twelve hours.

The cleaning, of course, diminishes, in some measure, the weight: perhaps about six or seven per cent. on the gross weight of the roots.

CHAP. II.

Washing the Roots.

Washing is not indispensible where proper pains have been taken by the cleaners; neither can it be done in every situation, the quantity of water required being so considerable. A stream of water contiguous to a sugar manufactory would be an important advantage. In general, however, the washing is attended with many difficulties, particularly those arising from frost, which not unfrequently puts a stop to it entirely; and some are disposed to think that it may be dispensed with altogether, by spending a little more time and money about the previous cleaning, and especially by using a large rough brush, after the scraping knife; but this latter has not yet been tried.

It is important that the vulgar prejudice in favor of washing, and even the idea that a large quantity of water is required in the manufactory of beet sugar, should be done away with. The manufacturers may rest assured that the want of water need not be an obstacle to an establishment, in any case; and that the quantity absolutely necessary to carry it on is very small indeed.

CHAP. III.

Rasping the Roots.

When M. Achard first attempted to make sugar from the beet root, he began by drying the roots by steam, then reducing them to paste by a mechanical process, and finally extracting the juice by pressure. It appears that the plan did not succeed, for he abandoned it. In fact, it is not that the sugar undergoes alteration from this drying or baking the roots, but that the pulp resulting from the drying process is so finely divided and slippery, as to render it extremely difficult to separate the juice from it. After many ineffectual attempts, M. Achard at last resorted to the method of rasping raw.

The texture of the beet root is so firm and compact, especially the better varieties, that mere pressure will extract but a small proportion of its juices, which appear to be enclosed in a number of little cells, and it is necessary to break these by rasping, in order to set the juices at liberty.

Other circumstances being equal, the best and most minutely divided roots will yield the greatest quantity of juice with the least pressure; and this constitutes the perfection of rasping.

1. *Rasping Machines.*

There are rasping mills of various kinds, but that invented by M. Molard has been considered one of the best in use. The principle is that of a cast-iron cylinder, set round with jagged, saw-like blades, by means of which the roots are cut, torn, and squeezed, till they part with as much of their juice as is possible. It will rasp about three and a half tons of beet in an hour. Price charged by M. Molard on delivery, 1000 francs (£41 13*s* 4*d*.) The cylinder alone is worth half this sum, therefore an extra cylinder will add so much more to the cost of the machine.

2. *Operation of Rasping.*

Two laborers are required to work M. Molard's rasp, or sometimes it is worked by one man and two children.

Of all the operations connected with sugar making, the rasping demands the greatest expedition. As little as possible should be rasped beforehand, because the pulp speedily alters by exposure to the air. In fact, this alteration shows itself in a quarter of an hour, or, at most, half an hour after rasping. This operation, therefore, should only keep pace with that of the press, and not be much in advance of it.

The rasp should be washed at least once a day, and kept as free from dirt as possible, all *particles* of juice, or pulp, being but the elements of fermentation.

3. *Power for Working a Rasp Mill.*

The rasp ought not to be worked by hands, on account of the expense. Horses or oxen are far cheaper, and more powerful agents, but better than these are wind or water powers. The last decidedly the best, wherever a sufficient fall can be obtained. Of the two first mentioned, the author gives the preference to oxen, as working equally well, and requiring far less costly keep than horses, the pulp from the mill being generally all that is required to keep them—a description of food which horses will not touch.

M. Dubrunfaut is inclined to prefer a wind power, as being a more practical and general agent than either water a steam, the former being rarely to be met with in level agricultural districts, and the latter very expensive, except in the immediate vicinity of coal. The society for the encouragement of national industry, aware of the importance of this power, offered a premium of 4000 francs (£166) for the best mill, which premium was awarded to M. de Lamolere. It is intended to be placed on some one of the farm buildings. Cost only 2,400 francs (£100;) horses or oxen may be attached to it in the absence of wind; this provision is absolutely necessary in a beet-root sugar manufactory. A pair of stones may also be added, by means of which the family may be supplied with meal and flour. The only inconvenience attending a wind power is its inequality. This has sometimes been complained of by the raspers.

CHAP. IV.

§1. *Extraction of the Sugar.*

The extraction of sugar from the pulp is only to be performed by pressure, and the more powerful this is, the more the juice from a given quantity of pulp. However, it is impossible, do what one will, to get it all out; for, even after the greatest pressure, the pulp will still continue moist.

In this operation, as in many others of a like na-

ture, the last particles of matter become so difficult to obtain, as to render it more economical to neglect them altogether. Thus in pressing the pulp of the beet root, the first juice runs out of itself from the bags, and it continues to flow abundantly under the slightest efforts of the press, which the first always are; the quantity then decreases, perhaps in the inverse ratio of the square of the pressure. The remark may appear puerile, but it is highly important, as we shall soon see.

Suppose, for example, that with a known power, a certain quantity of juice is expressed in a given time from a mass of pulp. Suppose, in order to give the press the maximum of effect of which it is capable, that three men are employed for one hour, and that by this means 70 per cent. of syrup from the juice is obtained; it is probable enough, that by applying double the pressure after this, not more than 10 per cent. in addition will be obtained. It then becomes a question whether the quantity so obtained be worth the cost of producing it.

Mr. Caffer employes a hydraulic press of the power of ten tons, on a surface of about 74 square inches. This was charged in the presence of the author, and from the pulp about 70 per cent. of juice was obtained at the first operation. The power was then doubled, but not more than 8 per cent. of juice was the result, which, as before observed, hardly paid for the labor of producing it. However, on this point, much depends on the nature of the power used; for it is obvious that wind, water, steam, or even horses and oxen, are less expensive than hand labor, now so commonly resorted to.

It may be imagined that an increase of power in this department would fully answer the required end; but, as has been said before, it is to the rasp that we must look for obtaining the greatest results from the press.

All roots do not give out the same quantity of juice from similar rasping and pressing. Those which are richest in sugar give far less of it than those of a more watery formation. The operations of extraction being the same, it is only the different proportions of water which influence the quantity of juice afforded by the roots; and as the richness of the juice is ascertained in a manner sufficiently exact by the areometer, we may, by the help of this instrument, pretty nearly determine the quantity of roots which must be rasped to obtain a given body of juice.

Thus, with a good rasp and a powerful press, the following quantities of juice may be obtained proportionably to their areometrical densities:—

A	5°	80 per cent.
A	6°	75 "
A	7°	70 "
A	8°	66 "
A	9°	63 "
A	10°	60 "

Supposing that the experiment be tried on twenty-five hectolitres (88 English cubic feet) of juice, weighing 6° by the areometer, it would be necessary to rasp and press 3¼ tons of roots; at 7°, 3½ tons; at 8°, 3¾ tons; and so on in proportion.

It is important that the operation of pressing should be done quickly; for as little delay as possible should take place between the rasping and pressing; as also between these and the defecation.

§1. *Of Presses.*

A variety of presses have been mentioned as applicable to the manufacture of beet-root sugar, as the screw, the lever, the wedge, the cylinder, and the hydraulic. Of these the last is decidedly the best, as extracting at one operation all the juice that the pulp is capable of affording.

2. *The Accompaniments of a Press.*

These accompaniments are the following:
1st. The bags which contain the pulp.
2nd. Osier hurdles.
3rd. A flat reservoir for prepairing the bags in.
4th. A cistern for the juice, with pipes, pump, &c.

1. *The Pulp Bags.*

These bags should be made of strong materials: Russia canvass, for instance. The texture should not be too close, so as to injure the juice from escaping, or they will be in danger of bursting; neither should they be too course, or the pulp will squeeze through the meshes. This last inconvenience is, however, of less importance, and of less frequent occurrence than the other.

The size of the bags ought to be regulated by the power of the press; observing always, that the surface pressed should never extend beyond the edges of the press itself.

As to the number of bags, that must of course, depend on the number of working presses, their size, and the charge of pulp which each bag is made to hold. Thus, suppose a press of which the height of the pressing space is three feet three inches, and that each bag shall be so filled, as, with the hurdle, to take up a thickness of 1½ inch, it will then require twenty-five bags for each charge pressed. Add to these, five others for extra occasions, it will then form what is called a *set* (*unjeu de sacs*). If the press is kept at work day and night, three sets will be required; but, if only in the day, two sets will be sufficient. They ought to be changed every twelve hours. In some manufactories they use but one set, even if working day and night; but this is by no means desirable. Reckoning five months as the average length of the working season, one may fairly calculate on wearing up a set of bags in each season. The bags ought to be carefully washed in hot water every twelve hours, in order to keep them as free from impurities as possible.

Hurdles.

The hurdles are made of osier, either peeled or unpeeled. They support the pile of bags under the press, and ought to be very strong and well put together, though not cumbrous. The dimensions will depend on those of the face of the press; at all events, they ought not to be larger. It is needless to describe the destruction of these wicker hurdles further than to say that it resembles that of common hampers in its texture. The number of the hurdles must correspond with that of the bags, *plus* one. It will be advisable to have several sets of them, that they may be renewed every twelve hours. The same care is necssary in washing them frequently, as in the case of the bags; this is done in a flat cistern, of which mention will be made by-and-by, and which also serves to arrange the bags in. For this purpose the cistern is half filled with cold water, into which a certain quantity of unslacked lime is thrown. Each hurdle is then carefully passed through the liquor, afterwards well rubbed with a brush, and then washed in clean water.

Cistern in which the Bags are Prepared.

The cistern should be large enough to contain the juice which is separated during the above operation; it ought to be a few inches wider than the hurdles, and a foot or so longer than double the length of the same. Thus supposing the hurdles are 2 feet wide, by 2½ feet long, the cistern should be of the following dimensions:—

Breadth	2½	feet.
Length	6½	"
Depth	1	"

There should be a cock in one corner of the cistern. This vessel ought to be of stout wood, lined with thin copper. Its situation in the building is between the rasp and the press; and one of its ends ought to be as near as possible to the cistern for receiving the pulp from the rasp. For the convenience of working it ought to be raised a few inches above the level of the floor. It should be surrounded by four stout moveable rails to hang the bags on, when they are arranged.

It is in this cistern that the hurdles are recommended to be washed with the cold lime water. It is needless to say, that after such washing, the dirty water should always be let off, and clean admitted. Cleanliness is indispensable in every stage.

Cistern for the Juice, Pipes, Pumps, &c.

This cistern serves to receive the juice as it comes from the press; and from thence it is transferred immediately to the clarifying copper. It should be provided with suitable pipes, leading from the press into it, and with a pump to throw up its contents into the clarifying copper. This cistern, therefore, should be placed lower than the press; and, like the former, should be of stout wood, lined with copper. The bottom should be slightly inclined, to enable the juice to draw to one side, at the lowest part of which is a hollow, in which the end of the pump is inserted, that it may be entirely emptied.

The dimensions depend on the mode of working. If only one defecation take place in twelve hours, the cistern need not be above half the cubical size of the defecating copper. But if the plan be to work on small charges, so as to make two or three defecations in twelve hours, then the cistern ought to be of equal capacity with the copper. The form is of no importance whatever. The pipes should be of copper, and the whole carefully and frequently washed with lime water, and afterwards well rinsed.

3. *Operation of the Press.*

The cistern in which the bags are prepared, being placed as above described, one of its ends being a foot or more from the pulp cistern, the four rails are fixed, to support the hurdles. On the top of these rails, as a frame, a hurdle is laid; and on the hurdle, a bag charged with pulp; the bag and its contents are then spread evenly on the hurdle by two laborers, so as when finished to occupy a comparatively small space in point of thickness. This done, another hurdle is placed upon the bag, then a bag, and so on, in alternate layers of bags and hurdles, till the pile amounts to ten or twelve bags; it is moved to the other end of the cistern, where it remains till a third laborer carries it to the press; another pile is then formed of equal height to the one removed, which, in its turn, is moved on, and replaced by another. The average charge of the press is thirty bags. It is unnecessary to explain further the details of this operation; experience would very soon dictate the best system of working; we shall, therefore, go on to say, that when done, the press is discharged, and the three laborers proceed to empty the bags in a place appointed to receive the pressed pulp. The bags and hurdles are then separated, and got ready for another charge. Supposing that only one set of bags and hurdles are in use, it is easy to work off ten or twelve charges of a hydraulic press in twelve hours. Thus from charges amounting to 400 kilogrammes (883 lbs.) of pulp, one should press in a day 4 tons to 4¾ tons of roots, which, at seventy per cent. of juice, would yield from 644 to 764 gallons of juice. This juice is received in the cistern before mentioned.

During the preparation of the bags, there collects in the cistern, in which this work is performed, a certain quantity of juice, which would be hurtful if suffered to remain there long. This, therefore, ought to be removed at every charge, or, at most, every two charges of the press, which is easily done by the plug, or cock, at the bottom of the cistern, and which communicates by pipes with the juice cistern.

(*To be Concluded.*)

FARMING.

The Ancient Romans so highly esteemed the employment of agriculture, that the highest praise they could bestow upon a man, was to say that he cultivated his own lands. Their greatest and most illustrious men in the early ages of there public devoted their time to this occupation—that is to say, they were farmers. Their greatest generals, likewise, during the intervals of peace, were in this habit, and prided themselves upon tilling the soil. In republican America this useful art seems to be undervalued, because it is not sufficiently splendid; it is not so eligible for ambitious young men, who look to their employment and to their emoluments for their reputation. We would say to them, however, if they are desirous of a steady increase of wealth, let them till the soil; if they are desirous for a good and unenvied reputation, let them be farmers. It is idle to suppose that a young man who is concerned in trade is really any more respectable in this community than one who is engaged in agriculture or a mechanicle art. The great majority of the people of this commonwealth are sufficiently intelligent yet to estimate an individual according to his personal merits, rather than by his occupation and calling. And if any occupation be more respectable than others, it ought surely to be that which has been the favorite and the professional occupation of some of the greateset of men in all ages. And this can surely be said of agriculture more than of any other private employment. Some of the greatest philosophers have written upon agriculture, and some of the greatest of heroes have practised it with their own hands.—*Boston Statesmun.*

COMMUNICATIONS.

Action of Frost and Circulation in Plants.

No. 2.

The cause of this circulation of the juices of plants, and the consequent results, is undoubtedly the same which is the cause of all motion in nature, caloric; though in which of its modifications, whether of pure heat, electricity, or magnetism, cannot as yet be positively ascertained. Irritability of any kind, either in plants or animals, is impossible without the presence of caloric,—its total absence would be the precursor of universal death. Irritability never exists without a corresponding circulation of some kind, in animals of blood, in vegetables of the necessary sap. We have the most decided proof in the course of vegetation as the seasons progress, that here it is indispensable; and in the case of animals it is hardly less plain, that on caloric depends their motion and existence. For myself I have scarcely a doubt, that under God, the movement of the blood in our veins, and our consequent nutrition; the circulation of the juices of plants and their necessary growth; the pointing of the needle to the pole; the motions of the planets in the heavens; all chrystalization and aggregation of particles, and most of the other varied and frequently deemed mysterious operations of nature, are owing to one and the same cause, which at present, for the sake of a better name, may be termed electro-magnetism. Every discovery in science, every new revealment of the mysteries of life, motion, and gravitation, point to this cause as the source of their mightiest energies. Art in some respects has already outdone nature, and by a concentration of this organizing vitalizing power of nature has produced effects which one short century since, would have been denominated as partaking of witchcraft, or wondered at as bordering on the miraculous. Processes in the growth of plants for which nature under the most favorable circumstances requires weeks, have by art been reduced to a few hours; and the organization of the animal has been forwarded as much in as many days, as nature could have effected in as many weeks. The more vigorous and active this electro-magnetic current is when connected with vitality, the more rapid will be the development of the plant or the animal; in the animal and by the ordinary processes of nature, food is the generating agent in this constant circulation; in the plant manure performs a part directed to the same end; and the generation of this powerful agent by the voltaic plates is scarcely more tangible, than it is by the proper admixture of two or three of the principal earths with moisture and vegetable or animal matter.

Wherever the flow of this electro-magnetic fluid is regular and constant, and according to the law of its nature, every thing moves on in health and harmony; whenever this course is interfered with, its flow interrupted, or its quantity abstracted, the most disastrous results will inevitably ensue; and these effects will be injurious exactly in proportion to the rapidity or violence of the cause that produces them. Any thing which should cause or force the sap of the wood to retrograde, would, for the reasons stated above, cause the death of the tree or plant in which such a movement should occur. This fact is exemplified in the case of lightning. If the fluid penetrates the tree, and follows the *wood* from the top downwards, it is evident the current of the juices must be violently reversed, and experience shows that instantaneous death is usually the consequence. On the contrary, if the electric fluid glides over the bark as it were, without penetrating the wood, the natural course of the descending sap is followed, and the injury is rarely more than superficial. Indeed in some cases such an event has proved of decided advantage to the tree, greatly increasing the rapidity of its growth; of which a striking instance was given in the French scientific journals of the last year. In the first instance, the electro-magnetic current is reversed, or destroyed, and the circulation of the sap so far as this reversal extends will of course cease; in the last instance such an effect is not produced on the ascending fluids, and of consequence no injury is done. Ordinary magnetism furnishes many things analagous to this. A heavy discharge from an electrical battery, a flash of lightning, or a heavy blow with a hammer, directed in a contrary direction to the established flow of magnetic influence, will destroy the attractive force of the magnet or the needle, until their energies are restored by a new current in the usual manner.

The expansion of the juices of plants by their freezing, or the rapid abstraction of caloric, produces the retroversion of the magnetic current, and of course the circulation of the juices, as effectually as does their expansion by the sudden elevation of their temperature during the passage of the electric fluid. In the case of the rush alluded to, it is evident the conversion of the water between the joints into ice, would by its expansive power force the fluid downwards, and rupture the vessels at once; and the same effect is produced in the extremities of the branches, or tender twigs of young trees. The more recent the growth, the greater the liability to injury, and that from two causes;—the greater fluidity of the juices, which causes them to freeze sooner, than when by elaboration and evaporation they become more viscid, filled with resinous matter, and partially converted into woody substance as it were; and because in a recent growth, the parts have less adhesion, as is evidenced by their partial transparency, and are consequently more easily ruptured and separated by the agency of compression.

All living plants and trees are several degrees warmer at all times of the year, with the exception perhaps of the warmest part of the summer, than unorganized or dead matter; and this vital heat greatly assists them in resisting the action of frost; still in our severe winters and violently freezing weather, all recently formed wood is more or less liable to be killed. Of this fact, the tops of our native beech forests, our avenues of locust and mulberry, our nurseries of peach, cherry and other less hardy fruit trees, bear too conclusive testimony. All parts of our northern states where deep vallies or water, courses extend north and south to a considerable distance, are more exposed to suffer from frost than more elevated tracts, or even our hilly regions. Of this the vallies of the Hudson and Connecticut furnish striking instances, the cultivation of fruit trees in both these sections of the country being more uncertain and difficult than in the elevated sections on either side of them. Since observations have been more multiplied, it has been ascertained that all deep vallies, whatever may be their direction, have a greater degree of cold than the bordering hills, a fact contrary to the commonly received opinions on the subject, though perfectly philosophical, since it is clear that cold air being the heaviest must of necessity fill the vallies and decrease the temperature of such places. When the ground is clear of snow a contrary effect takes place, and owing to the radiation of heat vallies are always the warmest. The basin of the great lakes furnishes perhaps the best fruit country in the United States, yet here the deep vallies that stretch into the high lands to the south, and open to the north, are more liable to have trees, such as the peach, apricot and mulberry, injured in our winters, than on the ranges of hills that border them. Many varieties of trees and shrubs that cannot endure the winters of Albany and Northampton, flourish unhurt at Rochester, and on the south of the Ontario generally. The greatest degrees of cold we have noticed for the past two years have been recorded in the vallies of Schoharie, Lebanon, and Franconia; and during the last winter the thermometer sunk from three to five degrees lower, on the Seneca level of West New York, than it did at an elevation of from seven to ten hundred feet, some fifteen miles to the south.

But whatever may be the nature of the current which impels the sap through the pores of the wood, or the trunks of vegetables, or enables it to maintain its elevation at the greatest height to which it ascends; and however fatal a sudden and violent reversion of this current must be, it is evident the obstacle is one which nature can surmount, when permitted freedom of operation and time for action. There is a beautiful illustration of this capacity of trees to accomodate themselves to their situation, in a range of willows in the gardens of Kew, near London. In planting these trees the natural position of the trees was reversed, the tops properly trimmed being placed in the ground, and the roots elevated into the air. They immediately vegetated, threw out fine tops, and the growth has been as rapid and vigorous, and the trees have continued as healthy, as if the order of nature had not been apparently infringed upon.

All observers of nature seem to be agreed that the death of plants, when such an event occurs prematurely, or the killing of the young and tender twigs of trees, in the fall of the year, is occasioned by the juices being arrested by frost, before by the regular processes of nature the vessels become hardened, or in the case of trees converted into wood; and the most effectual method of preventing such results, has become an object of much interest and inquiry. There are many kinds of trees and plants which it would be perfectly useless to attempt raising in our climate, such as the oranges, olives, dates, sugar cane, breadfruit, pine apple, and multitudes of others, and which are never attempted by the nurseryman or gardener: there are others, natives of a more genial climate than ours, which still in general will succeed with us, though requiring more care than is necessary in more favored regions, and the fruit after all being of inferior qualities. Such are all the varities of the peach and apricot; all the varieties of the grape; some of the plums and the pears, and the finer kinds of melons; and it is to the improvement of the last class, and rendering their growth more certain, that the efforts of individuals in our latitudes are principally directed.

Experience has shown that all plants possess the power to a certain extent of accomodating themselves to the climate in which they are placed; a power which is of the greatest service in what is called the acclimatization of plants. Failures may now and then occur, but in a succession of years they grow less frequent, and unless of the kind which from their tropical origin and growth, are perpetually excluded from our gardens and orchards, the plants and trees become more hardy and less liable to suffer from frost and the other vicissitudes of our season. This effect is produced in part by a gradually less rapid growth, and an earlier hardening of the new wood of each year's growth; and art by imitating nature *in these* respects, has added much to the certainty which *in ordi*nary seasons attends the cultivation of the more delicate fruits. The twigs or branches of trees are destroyed in the fall of the year by freezing before the wood hardens, and the same effect is produced in the spring by unseasonable frosts after the young leaves and shoots have put forth. Of this a striking instance occurred in the severe frosts and snow of May 1834, in which the young shoots of the beech and butternutt & other forest trees which had shot forth to any extent were effectually killed, and from which they scarcely recovered during the summer. The flower buds of the peach tree are sometimes killed in the winter, by being prematurely swelled, the only instance of this kind that occurs among our fruit trees; for though the flower buds of others sometimes are injured, it is never until they are partially opened by the warmth of spring. Perhaps every one has seen the bark on the bodies of young and thrifty trees loosened in the spring, and drying up and coming off to a considerable extent in the course of the summer; not unfrequently causing the death of the tree. This starting of the bark is occasioned by sudden and severe frosts, after the circulation of the sap has proceeded to some extent, the expansion of the juices by frost cracking and starting the bark at once from the wood.

To prevent the killing of the buds or branches in the spring any thing which shall retard their putting forth until the proper time has come will produce the desired effect. Lowering the temperature of the earth around the trees would do this, and we have seen the blossoming of the peach put back for a fortnight by treading snow firmly around the tree, and then covering this with a dense layer of swingling tow, or the coarse tow made by dressing flax. To prevent the formation of the tender shoots which are sure to suffer in the fall, it is necessary to check the flow of the sap which urges the growth, and that so seasonably as to give the new wood time to harden before it is touched by the frosts. This is done the most surely by planting trees liable to suffer in this way,

in situations and soils, which while they are favorable to the tree, are not so rich as to force its growth in too late a period of the season. Trees which grow in a dry gravelly soil are less liable to injury than those growing in wet ones, and those in a dry *poor* soil nearly always escape. Preventing the circulation of the juices by twisting a cord or a wire around the stem or branches that admit of such a compression has been practiced and recommended by some, the obstruction to be removed when the necessity for its application ceases. We have never seen this method tried; but the philosophy seems objectionable, whatever the practice may be. At present the danger of trees being killed by frost is felt the most in the peach and mulberry orchards or nurseries; and any method which shall secure these trees from frost will be hailed as a public benefit. W. G.

Otisco, June 1, 1837.

The White Mulberry.

Mr. Tucker—On page 164, current vol. of the Farmer, I find an article on the "Loss of Mulberry trees," by Rawson Harmon, jr. He says—"I should be pleased to learn through the Farmer, how the young Mulberry has withstood the past winter generally in this section of country." I will cheerfully give him the result of my success; and in the first place would direct his attention to an article of mine, "On the Culture of the White Mulberry," page 20, current vol. About two thirds of the trees in the beds sown the 12th and 26th of May and 12th of June, are living, and the most of them have commenced a very rapid growth. Those sown the 12th of July are *all* dead. On examination about the 1st of May, I came to the conclusion that my trees were mostly killed, as they were very much raised out of the ground, the tops being killed so low that there was not the least appearance of their sprouting, and in fact I considered more than three-fourths of them dead. I was very much disappointed and somewhat discouraged to find my first attempt so completely overthrown, and took no more notice of them till within two or three days since, when to my astonishment two-thirds of my trees were living! Some of them have already grown six inches, while others are just vegetating or swelling their buds. I hope Mr. Harmon has, ere this, been as agreeably disappointed as myself.

I stated in the article I have alluded to, that I intended transplanting some of my trees into edge-rows and the rest into a nursery this spring, which I have not done, as I thought the most of them dead, and concluded what few were living would do as well in the beds as in edge rows, &c. They are now very much crowded, which will probably retard their growth considerably this season. Cultor.

Cayuga Co. June 10*th*, 1837.

Inquiry.

Do the cuttings of the Grape Vine do better put into the ground in the fall or in the spring? Will you or some of your correspondents answer this and oblige yours, R. S.

Genuine politeness consists chiefly in the exhibition of kind feelings. Where we love, esteem, admire, we are naturally polite. But there is a spurious species of politeness in the world, worn over the sheerest heartlessness, which is most readily detected by the pains it takes to avoid detection—the excess of mannerism which it exhibits. The simplest act of disinterested kindness—the tone, and tear, and little attentions which show where our sympathies are—the assiduous care in avoiding whatever may give pain—in doing whatever may give pleasure, no matter however unostentatiously, stamps the man of genuine politeness.

A small piece of lime boiled with watery potatoes will render them mealy—salt only hardens them.

The Great Error of American Agriculture Exposed, and Hints for Improvement Suggested.

BY THOMAS MOORE.

(*Concluded.*)

Thus, all my experiments and observations have uniformly tended to establish one fact, which is that in order to insure success for a length of time, it is necessary that the soil be kept in fine tilth, and that to a considerable depth. In some parts of our rich Western country, nature seems to have effected this purpose, in great measure, without the labor of man: The earth being here covered with a fine black mould, to a greater depth than the deepest ploughing. As long as it continues in this state, the operation of the plough and harrow, will be of little other use, than burying the seed and destroying weeds. There are also two other kinds of soil, frequently to be met with in the Atlantic states, which are often preserved for a great length of time in a state favorable to vegetation, without much attention; these are the fine black sandy soil, and the soil that abounds with calcareous earth, or lime-stone lands: Yet even on these, I believe we should find our account in a *deeper cultivation* than is usual.—But by far the greater part of our country is of the kind alluded to, in the foregoing remarks.

Seeing then, such a state of the soil is absolutely necessary, it becomes the great, the most important business of the husbandman, in the first place, to produce it, and then to perpetuate it by all the means in his power. I am far from believing, that these ends can always be profitably attained by means of the plough only; but that more depends on the judicious use of that instrument, than has generally been supposed, I trust, has been demonstrated. It is scarcely needful to add, that a fertile soil is always of a dark color, and soft to the touch; and whatever applications will produce this appearance and texture, is a manure. I shall here offer a few observations on the extraordinary effects of plaster of Paris or gypsum, leaving others to judge whether this effect on the soil, is not to be considered amongst the principal virtues of manures in general.

The great effects of this wonderful substance, is visible to all; but the manner of its operation is mysterious. Among the various conjectures respecting it, some have pronounced it a powerful stimulus, which putting all the vegetative powers of the soil in action, produces one great effort, and afterwards leaves the soil barren. This reasoning (if it may be so called) upwards of twenty years experience, has proved to be fallacious. Others, with greater plausibility, have attributed to it, an attractive property, whereby vegetable nutriment is extracted from the atmosphere; and some others say, mere moisture only, is attracted; as a proof of this attractive property, they adduce the fact, that dew is to be seen later in the morning on grass that has been plastered than on the adjoining that has not.

This theory (though apparently plausible) in my view is not without insuperable objections. I would ask in the first place, what change it undergoes in the soil, that disposes it to attract moisture more copiously than when above ground? I have not been many days without having some of it in a pulverized state in my possession, for several years, and have often looked in different kinds of weather for that effect, and have as often looked in vain. I have never seen any thing like moisture about the substance itself, nor the vessels that contained it, neither in damp nor dry weather, more than was common to other substances; on the contrary, I have sometimes dampened some to sow, and have found it inclined to dry very quickly. It is well known, that on lands where the proportion of clay is great, it has no perceptible effect: I have also found, as well as some others, that where applied to a fine mellow soil, the effect is very little; if it operates by attraction, why not attract here as well as in other soils? certainly both would discover the good effects of a supply of moisture in a dry time.

I would suggest for consideration, whether its effects may not be satisfactorily accounted for, on the *principle* before alluded to, as the *basis of agriculture*, a mere preparation of soil; without ascribing to it, either stimulant or attractive properties, other than the promoting a fermentation in the soil, which may be called stimulant.

On a chemical investigation of the properties and composition of this substance, two things are discovered; first, that it is soluble in water, but that the solution is remarkably slow; and secondly, that it contains a very great proportion of vitriolic acid.—In applying it to the soil, I have observed, that no visible effect takes place, until after some rain has fallen subsequent to its application; that the finer it is pulverized, the quicker the effect, and the shorter the duration; the fine dust blown from the hand at the edge of the sowing, or between the casts, sometimes producing as great an effect the first season, as any greater quantity, but entirely ceasing afterwards; while the middle of the casts, where most of the coarser parts fell, will show the effect for several years, giving the crop a striped appearance: that where the soil contains a large proportion of clay, it has no perceptible effect; and that on a fine mellow soil, the effect is but very little, sometimes not perceptible. These observations I expect, have been common to many practitioners; from which I infer, that it is first slowly dissolved by the rains; that after solution, decomposition takes place in the soil; and the vitriolic acid being thereby set at liberty, to combine with any other base it may find in the soil, effervescence or fermentation (a well known effect of chemical combinations and decompositions) is from time to time produced; thereby separating the parts of the soil, and giving it that appearance and texture, which is common to all rich soils; and that this state always exists, where the gypsum takes considerable effect on the growing crops, I am bold to assert: In general it is very visible on the surface, but always by passing through it with the plough.

I might here risk an opinion, why the application of plaster to clay, fails of exciting a sufficient degree of fermentation, to effect a separation of its parts; but as I by no means profess a critical knowledge of chemistry, shall leave it to others better versed in that science to assign the cause, and only assert the fact, that by such applications the tenacity of the soil is not destroyed, or any visible effect on vegetation produced. In an open mellow soil, great effects are not to be expected, because the state which the plaster is calculated to produce, already in great measure existing, leaves it little to do.

But it will no doubt be queried how I account for the appearance before mentioned of the dew remaining longer on the grass, where the plaster has taken effect, than where none has been applied? To this I answer that it is not in consequence of a greater quantity falling thereon, but because it is more slowly evaporated. Whoever will be at the pains to examine, will find that this appearance is not confined to the plaster; but that grass growing on the ground made rich by any other means, will show the same difference, when compared with the same kind, growing on poor ground alongside of it; or if observed when the sun shines after a shower of rain (when both must be effectually wetted without attraction) the same thing will be seen, and is easy to be accounted for on philosophical principles.—The soil upon which the grass grows luxuriantly and retains the moisture, is always of a darker color and softer texture, than the poor soil adjoining; it being therefore more fitly adapted to imbibe the solar rays, they pass freely into it, while they are plentifully reflected back from the hard light colored poor soil, on the drops of moisture suspended on the grass, operating in the same manner as the rays of heat from a reflector placed behind roasting meat: Add to this that the grass always grows thickest on the rich soil, which will also contribute to *prolong* the drying operation.

Where this manure has great effect it in some measure answers the purpose of *deep ploughing*; many having discovered that *washing* ceases where it is frequently applied with advantage to the crops. This is a certain proof that the soil is opened to a sufficient depth to imbibe the whole of the heaviest rains, and thereby prevents the accumulation of water on the surface: Hence we may safely conclude, that its operation continues much deeper than the usual ploughing. This is the secret which has prevented some Pennsylvania improvers from discovering the necessity of deep cultivation. I have been told that some great *plaster users* when consulted on the subject of deep ploughing, have answered, that their crops have succeeded well with the usual depth, and therefore have not seen the necessity of going deeper. But let them cease to use the plaster, or confine their operations to a soil where

its effects are inconsiderable, and then, after a fair trial of both methods, if they do not see cause to change their opinion I am very much mistaken.

Judging from the experience we have had of this manure, the judicious use of it is certainly to be recommended, while it can be had at the present low price. I prefer using it as a top dressing for upland grasses, at the rate of from three pecks to a bushel per acre. But those who substitute it for every other kind of manure, and neglect all other means of improving their lands, will probably one day find that they are not so far advanced in agricultural knowledge as their present sucess may lead them to suppose.

I am acquainted in some neighborhoods, where the farmers are fast increasing in wealth; their crops having nearly doubled within seven years, and the ace of the country astonishingly changed for the better; and yet I do not believe they have made much progress in substantial agricultural knowledge.—Accident has put them on the use of *gypsum*, and this has done every thing for them that is done; if accident should again deprive them of it, they will probably, in a few years, find the quality of their soil and quantity of produce nearly the same as they were before the use of it.

This however is far from being the case with all who are in the practice of using it; there are in America, men of observation, of genius and industry, who are making the best use of this valuable foreign manure, while it is in their power; but at the same time, are paying such attention to the principles of agriculture in general, that if this should be immediately withheld from them, they would, nevertheless, be found in the high road for improvement, and some of them perhaps already in possession of the secret, of preserving their farms for any length of time, in a productive, and even improving state, without any foreign assistance whatever.

Before I leave the subject of gypsum I would just observe, that although I think highly of Richard Peter's publication on this subject in general, yet I cannot unite with him in believing it a "whimsical substance;" on the contrary, I believe it to be as perfectly regular in its operations as any other manure, when applied to soils upon which it is capable of acting. The quantity of moisture it receives, will no doubt, in some measure, govern the effect, but this I believe will be invariable: the same causes in this, as well as other manures, uniformly producing the same effects: In short, I have never yet seen any of its effects or failures, but what may be accounted for by the foregoing theory.

I have recommended some agricultural publications written in our own country, in preference to any European authors, because I think they are more to be relied upon in American practice. General principles are the same in all countries; but in their application, the soil, climate, and a number of local circumstances, ought always to be taken into consideration; to which it is but too evident my countrymen have not been in the habit of attending.

In Great Britain, their practice is acknowledged to be more perfect than in any other part of Europe and yet a late author is of opinion, that their tillage land in general, does not produce more than one-third of what it is capable. They are not subject either to the excessive heavy rains, or hot dry weather that we are; absolutely requiring with us, a greater depth of cultivation to counteract the bad effects of the climate on the soil; and yet their ploughing is deeper than ours; and the probability with me is, that this remains to be one material point in which they have yet to improve. I am told that about London and other places where land is very dear, their gardeners find their account in once at least, stirring their ground from two and a half to three feet deep.

I shall conclude these remarks, with observing, that although I think *deep culture* a matter of the first importance in this climate, yet there are other subjects which ought to engage our attention more closely than the appearance of our country indicates they have hitherto done. Among these are an economical choice and consumption of crops, for the support and fattening of live stock, and methods for the saving of timber. With respect to the first, it is certain, that one half the ground, and half the labor, generally appropriated to the purpose, is amply sufficient; or what is the same thing, the same ground, and labor may be made to support and fatten double the number. It is also demonstrable, that half the quantity of woodland generally thought necessary for fuel, fences, &c. will, with proper management, be sufficient; this will also be a saving of labor in nearly the same proportion. But as I have already exceeded the limits at first contemplated, and very probably have written more than some who have the most seed will be willing to peruse, I shall at present spare myself the labor of adding any thing further on these subjects, and thereby avoid swelling this pamphlet to what many may think an unnecessary size, after so many volumes have been written on the subject of agriculture.

Application of Steam to Agriculture.

Hitherto Agriculture has received little advantage from labor-saving machines compared with that which has been rendered to manufactures and the mechanic arts; and although many of the implements of agriculture have been greatly improved, especially those great implements, the plough and the threshing machine, the toil of human hands is still in full requisition; and as great an amount of animal labor as ever, is demanded on our farms.—By what means this is to be materially lessened does not at present appear; but when these inventions and discoveries shall have been made, of which at least we will indulge a hope as not being distant, we shall perhaps then be as much surprised at the simplicity of Columbus at his method of causing an egg to stand upon the small end. Professor Renwich, lately deceased,* to the great regret of the friends of science, had made considerable progress in the application of steam to the purposes of ploughing, though we are ignorant of the particulars of his invention; in England they seem to have advanced in this matter with considerable success, as appears from some accounts given in one of the late numbers of the British Farmers' Magazine, from which we copy the following remarks.

"That the steam-engine would at no very distant day, supply the place of animal labor in agriculture; and become as mighty an instrument in augmenting the productiveness of the soil, as it has proved in creating and economising manufactures, in navigating the ocean, and in travelling on land, was many years since predicted by Franklin (?) a prediction reiterated by Davy; and latterly acknowledged and enforced, as a great desideratum in science by many distinguished agriculturists. The successful application of Mr Heathcoat's invention to the culture of bogs, the most repellent and obstinate of waste lands, leaves no room to doubt its applicability to soils already in cultivation. Coals are now procurable throughout Great Britain at prices, which have caused the steam-engines to be extensively introduced as a substitute for animal labor in many of the processes connected with agriculture. Threshing, cleaning, grinding corn, chaff-cutting, and turnep slicing, &c., are now performed by small engines, fixed on farm premises; even the churn has its steam-engine, managed by the dairy maid; and so great is the advantage arising to the dairy farmer from the regularity of motion; and economy produced by it, that hundreds of small engines, for this simple purpose alone are used in the north of England and Scotland. But these are humble savings, compared with the benefits to be derived from the vast steam power, which may be applied to the soil itself. Those agriculturists who are acquainted with the effects produced by the valuable sub-soil plough, recently invented by Mr. Smith of Deanston, will readily appreciate the importance of an invention, which will enable them to employ that kind of plough at a much diminished cost per acre.

Mr. Smith's plough, with steam-power, will effect a re-revolution in agriculture. Implements of husbandry have hitherto been restricted, in form, weight, and dimensions, to the management of a team of horses. A new class of instruments will take their place. The stiffest soils may be broken up, and pulverized to any desired depth; strong clays, the natural wheat lands, may be profitably cultivated, rendered more fertile, and fitted to bear a better, and more systematic rotation of crops.

Such are a few of the benefits, which land owners and agriculturists will derive from this substitution for animal power in husbandry. It is also no slight advantage, in a national point of view, that this important change will be effected, unaccompanied by any of those temporary evils, which too frequently attend the application of mechanical discoveries to existing arts. This invention will not displace a single individual from his accustomed healthy occupations; it will, on the contrary occasion new and increased employment for agricultural laborers: it will restore to the support of man a considerable share of that large amount of produce, now sacrificed to the maintenance of agricultural horses; it will furnish employment to the rapidly increasing rural population of the empire, rescuing millions of acres of bog and waste land from obnoxious sterility; it will find on their native soil multitudes of those Irish laborers, who annually emigrate to Great Britain in search of work and food; or who are forced with numbers of our own countrymen to prefer the dangers and hardships of emigration to wild and distant countries.

In the Mechanics' Magazine for July, there is a notice of a steam-plough, projected by Mr. Dickson, who has no doubt of its efficacy to plough all sorts of land, and adds that portable steam-ploughs will ere long be going about, and undertaking to plough for whomsoever may desire their assistance; and with very little more preparation than is now required to place a portable thrashing machine." An Edinburgh news-paper, states, that 'Mr. Craig of that city, has taken out a patent for an American steam-plough, which costs much less than Mr. Heathcoat's, but probably is not sufficiently powerful for bogs.—From our knowledge of the business of a farm the only objection we have to a steam-engine in such an establishment is, that it cannot do every thing.—For all purposes, where horses cannot or should not walk, as on many descriptions of bog, a steam-plough may answer well; and there is no doubt that old arable land may be properly ploughed with steam power; but would it also take the corn to market and do all other kind of road work. Would it carry out dung; and carry corn to the barn, or hay to the rick yard? If not, then some draft horses must be kept; and if there be not a full complement, such work would go on very slowly and unsatisfactory."

"Since writing the above we have seen an account of a steam-plough made by Mr. Upton—London. He affirms that it can be made generally useful, and that an enormous saving in the expenses of a farm where it may be introduced, will soon be manifest. This steam-plough of Upton's is worked by Upton's patent lever steam-engine and his air-furnace boiler. If a single shared plough, the space occupied by the entire machinery will be 4 feet by 10 feet; if for trench ploughing, the dimensions will be the same; if for ploughing two, three or more parallel furrows at once then the breadth and length will be about five feet by twelve. The work done by the trenching ploughing, will be equal to any spade husbandry; and that by the parallel shares will be found very superior to any horse ploughing; inasmuch as the ground will not be trod or rammed down by horses feet; and as the steerer and ploughman will ride on the machine, the land will be left as light and open as possible, and resemble that of garden culture. To the steam-plough a harrow, drill, and seed box can be attached, when requisite, and the entire operation performed at one going, when it is for the last ploughing, without trampling the soil. The spots left in the angles of the field by Upton's steam-plough will be smaller than by any horse plough, as the steam-plough will turn if a single share, in thrice the breadth and length of a common wheel-barrow; and if a three shared plough, it will turn in the space of a small one horse cart. The simplicity of construction and small number of parts composing this steam-engine and boiler, and the great safety and security of the latter, prevent the necessity of frequent and expensive repairs, as the only parts of the apparatus liable to wear and tear are the ploughs, shares, coulters, and harrow tines, which will only require the same repairs as if drawn by horses. The engines and boiler are calculated to go 50,000 miles or more before any repairs could be wanted unless from accident or unfair usage; and whenever from long use, very much worn, if the boilers were to burst, it could only extinguish its own fire without injury to any person close to it.—

*The Report of Professor Renwick's death was happily unfounded. Editors N. Y. Farmer.

The plow will require one steady man to direct and steer it; and a tractable boy to attend the fire and turn the steam off and on occasionally, the engine being of the most simple and efficient construction. The water tank will require replenishing now and then; and perhaps fuel will be required two or three times in the course of the day; and the boiler is admirably constructed for burning either wood, peat or coke, or coal may be used. The single plough is calculated to do two acres per day. The double plough will do four acres; and the three shared plough will do six acres. The counter or trench plough would do about ten acres per day; but as it would be equal in power to the double shared plough it would require the same quantity of fuel and expense. The land cultivated by this plough would doubtless be found, from its efficiency, to produce crops nearly if not quite equal to spade husbandry, with which mode of husbandry I am thoroughly acquainted from practice; and in such case it would pay for the steam the first season.

Such are the accounts, which are given of these great inventions, upon authority, which must certainly be deemed respectable. We may be excused for examining in some degree incredulous, as to the extraordinary advantages, which are here predicted to be brought about by them. At the same time it would imply a very gross self-esteem to say that no further improvements in this matter can be made; and an unwarrantable distrust of the testimony of other men, though they may be interested parties, to pronounce all their statements fictitious and visionary. We have no doubt that very great improvements in these matters are in progress; and after witnessing the wonderful and almost miraculous results of mechanical ingenuity and skill as applied to other of the arts within a few years past, we indulge the sanguine hope that great things are yet to be realized in this most important of all arts, agriculture, which even our dreams have not anticipated.

Our common ploughs have within a few years passed through most valuable improvements. The use of the cast iron plough has greatly reduced the expenses of their construction and repairs, and has already saved millions of dollars to the farmers in the country. The improved construction of the ploughs has likewise greatly reduced the power required for the draft, and the work is much better executed than formerly. In this matter however great improvements are still desirable. The manner of executing our work in general, is wretchedly sloven; and bears no comparison to the ploughing of the Scotch and English laborers. This in part is to be ascribed to the division of labor among them, where a ploughman is only a ploughman, and trained exclusively to this business from his childhood. With us it is not so; but we may hope that these fine examples of work, which these emigrants often set before us, together with the great improvement in the instrument itself, will stimulate, to a more vigorous and successful emulation.

N. Y. Farmer.] H. C.

Vegetable Irritability.

Every one acknowledges that there is such a state or condition in vegetables known by the name of vegetable life, but there has been doubts among many whether there is actually what is known by the term of life, in vegetables; or a living principle acting independently upon the elements which constitute the body of vegetables, or whether the appearances are not owing to the mechanical action of fluids, &c. upon the system of plants.

Numerous experiments, however, have shown, pretty conclusively, that there is such a thing or agent as vegetable life, or perhaps it may more properly be called vegetable irritability. A very simple experiment brought forward by Dr. Johnson, of England, may illustrate this principle.

If you take the stalk of many plants, such as the nettle or dandelion, cut it off and split it down a little way, the divided parts will instantly spread apart —separating from each other. Now to what is this owing? It cannot be because the parts are weakened, for if you invert them, they still keep their position. It cannot be on account of elasticity, for many, and indeed we may say all of the plants which will exhibit this appearance when green, will not show it when they are dry and much more elastic than when growing. Dr. Johnson found that poisons destroyed this power of diverging or separating. Now if it depended upon mere elasticity, or weakness of the parts, this could not be the case.

A stem of a plant called Bryany, which would exhibit this property well when green, was put into a solution of arsenite of potash. In two days it became flaccid, and this power was wholly destroyed.

He also put a nettle into a jar of Sulphuretted Hydrogen. The plant became weakened, and the divergent power completely destroyed.

On the other hand, many substances increase this action. You have undoubtedly seen children split the stem of a dandelion, and by putting it into their mouths, it would become curled up in rings or circles. Cold water will do the same—spirit and water, &c. If, therefore, poisonous substances will destroy this action, and some stimulants increase it, the inferences is fair that it depends upon vital action, and it must be analagous to the irritability or contractile power of the animal frame. If this be the case, and animal life and vegetable life, in its feeblest states, are so nearly analagous, may not the same amount of sensation attend the same amount of life in one as well as the other?—*Maine Farmer.*

To wash Silk.—Lay the piece of silk upon a clean board; soap a piece of flannel well, without making it very wet, and with this rub the silk carefully and evenly one way; after having thus cleansed one side of the silk, take a wet sponge and wash off the soap; proceed in the same manner to clean the other side, and then wipe the water off each with a clean dry cloth, after which hang the sik in the air to dry: do not ring it but hang it as singly as possible upon a linen horse, and let it dry gradually. When very nearly dry iron it with a cool box. In this manner we last summer washed a slate colored dress, which was so dirty with the constant-wear of a winter, that we did not like to use it even tor linings, without endeavoring to remove some of the spots, and we were quite hopeless of its being fit for any thing except linings, even when washed, but its brightness was completely restored, and its texture softer than when new."

Receipe for Coloring Flannel.

Take black alder bark—boil it well—then skim or strain the liquor. Wet the cloth in a pretty strong ley, and dip it into the alder liquor—let it remain till cool enough to wring, and you have an indelible orange color.

The better the cloth the better the color.

Lydia.

Jared Sparks, whose contributions to American history and biography are already invaluable, is now in Philadelphia, engaged in researches for papers and facts relative to Benjamin Franklin. No full life of Franklin, save the brief but entertaining one written by himself, has yet been given to the world. Mr. Sparks is, in all respects, qualified for the task he has undertaken.

It is stated in the Grand River (Michigan) Times, that flour is selling at that place for 15 dollars per barrel; pork, at 36 dollars; and pototoes, at 2 dollars per bushel.

Improved Cultivators.

JUST received from Albany, a few of Bement's Expanding Horse Hoes or Cultivator, with extra mouldboards, &c. complete. These are the most approved and perfect implements of the kind now in use, and deserve the particular attention of Genesee Agriculturists.

REYNOLDS & BATEHAM.

Rochester Seed Store, June 29, 1337.

Valuable Works on Gardening.

The Young Gardener's Assistant—containing practical directions for the cultivation of Vegetables, Fruits and Flowers. By T. Bridgeman, seedman and florist, New York—seventh edition, improved. Price $1.

The Florist's Guide—containing practical instructions for the cultivation of Flowers. By the same author. Price 37 1-2 cents.

The Kitchen Gardener's Instructer—containing ample directions for the cultivation of culinary vegetables, herbs, &c. By the same author. Price 37 1-2 cents.

For sale by REYNOLDS & BATEHAM,
May 20. Rochester Seed Store.

WILLIAM ATKINSON, *LAND AGENT*, 17 Exchange-street, Rochester. ☞ Farms for sale.
march 4 6m

Berkshire and China Pigs for sale.

THE subscriber has a considerable number of the pure Berkshire and China Pigs on sale at his residence on the Niagara river, 2 miles below the *B*lack Rock mills. *He* has also crosses of the *B*erkshire and China, and the China with the long English breed which are equally quiet in their habits, and possess the same tendency to fattening as the former, and have much the advantage in size. The character of these breeds are so well known throughout the state that any description would be superfluous; they are the choicests breeds in England, and the only kind used, by their best farmers, and it is believed the same quantity of food will make from 25 to 75 per cent. more pork in these hogs than if fed to the ordinary breeds.

PRICES.

Pure China or cross of China with the long English per pair at 4 weeks old,	$12 00
do. do. do. 6 weeks old,	15 00
Cross of China & Berkshire, perpair at 4 weeks old,	14 00
do. do. do do 6 do	18 00
Pure Berkshire, do. 4 do.	15 00
do. do. 6 do.	20 00

Communications made through the post office, should be directed to Buffalo.

june3ftf A. B. ALLEN.

Greenhouse and Parlor Plants.

THE splendid collection of Ornamental Plants at the Rochester Greenhouse on Sophia street, are now in a fine healthy condition and ready for sale.

The assortment is very large and embraces many of the most rare and beautiful Flowering Plants, all of which are of easy cultivation and will thrive in a common sitting room with ordinary attention.

Depending on extensive sales and desiring that all who are fond of plants, should enjoy that innocent gratification, we have determined to sell at very reduced prices.

Many of the plants are now in bloom, and the public are respectfully invited to call and see them. The House will be open every afternoon. REYNOLDS & BATEHAM.

May 27.

Still More Seeds!!

WE have just received large additional supplies of genuine Orange Carrot, Mangel Wurtzel, Ruta Baga, and English Turuep seeds, of the best quality.

Also, a good supply of Cucumber, Melon, Squash, and Pumpkin seeds.

The unprecedented demand for seeds this season, had exhausted our stock of some kinds. We can now supply orders at very low prices.

REYNOLDS & BATEAAM,
Rochester Seed Store. Arcade Buildings.

May20.

2.000 LBS. Ruta *B*aga, English Turneps, and Mangel Wurtzel seed, just received from England, and for sale at reduced prices, at the English *S*eed *S*tore, 62 *B*uffalo st. KEDIE & HOUGHTON.

april 29

3.125 L*BS.* Ruta *B*aga, White Flat, Norfolk, Long Tankard, Yellow Bullock, and other Turneps, Mangel Wurtzel, French Sugar Beet, and Orange Carrot, with a great variety of *English Imported Garden Seeds* —"cheap as dirt." at the Rochester Seed Store, *Arcade Buildings.* apr29 REYNOLDS & BATEHAM.

Fruit Trees For Sale.

THE subscriber respectfully informs his friends and the public that he has for sale at his Nursery in Rochester, Monroe county, state of New York, a large quantity of Fruit Trees, grafted and innoculated with the most approved kinds, now fit for transplanting, which he will sell on the most reasouable terms. SAMUEL MOULSON.

apr 15-tf

Morus Multicaulis.

JOSEPH DAVENPORT offers for sale 50,000 plants of the true Chinese Mulberry, or Morus multicaulis. Trees will be carefully packed and forwarded as early as desired. Orders must be sent to Colerain, Mass. till the 15th of March; after which time to Hartford, Ct. All inquiries will be attended to at his plantation, 5 miles south-west of the city. Earl orders only will be supplied, as arrangements will be made use all not called for soon.

Colerain, Jan. 23, 1837.

Monroe Horticultural Garden & Nurseries, Greece, Monroe Co., N. Y.

THIS establishment now comprises over 20 acres, covered compactly with Trees and Plants in the different stages of their growth.

The subscriber offers to the public a choice selection of Fruit Trees, of French, German, English and American varieties, consisting of Apples, Pears, Plums, Peaches, Cherries, Apricots, Nectarines, Quinces, Currants, Gooseberries, Raspberries, Grape Vines, Strawberries, Ornamental Trees, Shrubs, Plants, Hardy Roses, Vines, Creepers, Herbaceous Perennial Plants, Bulbous Roots, splendid Pæonies, Double Dahlias, &c. &c.

Also, a large collection of Green House Plants, of choice and select varieties, in good condition.

Orders respectfully solicited. Trees and Plants, when ordered, are carefully selected and faithfully packed, and if desired delivered on the canal one mile from the Nursery, or at Rochester.

Orders for Mr. Rowe's Nursery received by the publisher of this paper.

Catalogues will be sent to every applicant gratis, or may be had by calling at the office of the Genesee Farmer.

April 1, 1837. ASA ROWE.

A New Bee Hive.

BEES.—One of the best practical sermons we ever heard was from the text referring the sluggard to the ant "to learn the wisdom of its ways." Who that has read HUBER—and he that has not, has lost much by his negligence therein—can doubt that the BEE is still worthy of his attention, from its productive industry as well as the practical wisdom its example teaches? The farmer whose bookshelves are without some works treating of the varieties of existence, animate and inanimate, debars himself and family of many rich and unfailing sources of enjoyment which the Almighty furnishes in the thousand objects which surround his dwelling. It should be the aim of every man, in city or country, to render HOME as pleasant as possible to those whose time must be chiefly spent thereabouts; and in the country, how can this object be better promoted than by attention to such domestic arrangements as may interest the feelings and improve the taste of the females and children? Among the means of employing the attention of those classes, agreeably and profitably, a well-arranged APIARY would be always a pleasant appendage to a well-cultivated GARDEN. Both would yield rich returns in their luxuries for the attention bestowed upon them. Such are some of the many simple means which have a tendency to meliorate the feelings of young and old, and impress them still more strongly with the idea that "there is no place like home!" But we had no idea of sermonizing when commencing this notice—which was merely designed to call attention to an article mentioned by an Ohio print. It seems that the inventor, Wm. Groves of Cleveland, denominates his invention a "Patent Fortified Transparent Royal Bee Palace"—and truly, though we are not partial to such pompous titles, the new concern appears from the description to be well worthy of a *good name*.

From the Cleveland Herald.

It has always seemed singular to us that so little attention was paid to a branch of domestic industry which requires so little capital or time, and yet yields such rich returns. Our farmers appear almost entirely to have overlooked this source of income, which can be almost indefinitely increased, and is subject to as few causes of failure as almost any that can be mentioned. Now, when by the improvements of the day, each farmer can increase the number of his productive laborers to thousands or millions, and lodge them in "palaces;" laborers too, who never "strike," for higher wages, but work for nothing and find themselves, if house-room is provided—we are induced to hope that more general attention to the matter will be awakened, and that our citizen farmers and gentlemen will forthwith set about the encouragement of this kind of domestic manufaetures.

Mr. Groves, in offering his invention for sale, says:—

"It is arranged on a quite different plan from all former Bee Hives. It is so constructed, that from it the bees never swarm, and are enabled to roll off all offensive matters, and thus they can always defend themselves successfully against all intruding insects. It is also pronounced by the best judges, to be far preferable to any invention heretofore discovered, for the preservatiou of the bees. The honey can be taken from the waxen banquet halls, in summer or winter; every morning one or the other drawer, bowl, or stick can be removed with its adhesion, full of new comb, and the purest and best of honey, without the slightest danger or trouble, or even destroying or disturbing the bees; and because they always have the fresh, open healthy air, and stand in the shade, no disease will get among them, as they do not sweat or breed any worms in the summer season, nor smother by frost in the winter, and thus the bees will use very little honey themselves. The honey will, also, always be clean and fresh, and indeed much better. The delightfulness and convenience of seeing all their ingenious operations through large window glasses and bowls, for the great and remarkable increase of number, is worthy of notice.

These are some of the most obvious advantages arising from this "*Fortification.*" It is said by all those who have had a perfect trial of this Bee Fortress, that ten times the quantity of honey is obtained by this method, than by the former ones, as 160 gallons of honey have been taken from one house in a single year. They can now be seen in full operation in almost every county south of the Blue Mountains, in Pennsylvania, &c.

STATE OF NEW-YORK—USEFUL NOTES

From the New-York Times.

There are in the State of New York, 798 towns and 9 cities. The population of the city of N. York in 1830, was 202,589; in 1835, it was 270,089. There are 124 incorporated villages in this State. The villages are governed by a President and Trustees, who are annually elected by the people. The whole number of persons in the State of New York in 1825, was 1,616,458: in 1835, the number was 2,174,517. In 1825, there were in the State, 7,160,967 acres of improved land. In 1835, there were 9,655,-426 acres of improved land in the State. There are 1746 Post Offices. The amount of tolls collected on all the New York canals in 1836, was $1,614,336 43. The number of boats registered in the Comptroller's office, as navigating the canals in 1836, was 3,167; the total number of clearances on all the canals in 1836, was 67,270. There are 11 railroads now in operation, in the State. Total number of miles 233. The total amount of sales by auction in 1836, was $53,253,292 98. There are in the State of New York, 11 banks for savings. The capital of the Marine Insurance Companies in the city of New York is $5,650,000 00. Of Fire Insurance Companies $5,600,000 00. The capital of the Insurance Companies, exclusive of those in the city of New York, is $4,026,731 00. In the Custom House in N. York there are employed, in the collector's department 54 clerks; in the naval office, 13; in the Surveyor's office 6 clerks; in the appraisers office clerks. There are 109 Inspectors, 11 night watch, and 8 boat hands. The number of arrivals in the Port of New York, from foreign countries in 1836, were 2,293. There have arrived at N. York 266,-493 passengers from foreign countries, during the last six years. The assessment of real estate in the city of New York in 1836, was $233,742,303; of personal estate, $75,758,617. The total number of interments in the city of New York, during the year 1836, was 8,009; the total number of interments since 1824, is 81,467. The present number of whale ships owned by individuals and companies in the State, is 55; tonnage over 16,000 tons, employing a capital of over $1,500,000, and crews of about 1,350 men. There were in the Auburn States Prison, in December, 1836, 652 convicts; in the Sing Sing Prison, in September, 1836, 726 convicts.

Manufactures.—The value of manufactured articles in the State, was $60,669 067. The value of manufactured articles in the city of New York in 1835, was $2,788,347. There are 8 glass factories in the State, and 2 chain cable factories.

The number of attornies and counsellors in the state, in 1837, is 2,161.

The number of practising phycicians and surgeons in the state, is 2,876.

The number of clergy in the state in 1837, was 2,192.

The number of rank and file, in the state, by the military returns of 1836, was 193,610.

THE WORLD.—Such calculations as the following are well fitted to impress facts on the memory of young readers. The Roman Emperor who wished that mankind had but one neck, that he might destroy the multitude at a single stroke, might learn from such a calculation how the thing could be done.

The small space into which the whole human family might stand without being crowded, appears very remarkable upon calculation. A square mile contains 3,097,600 square yards, and at the rate of four persons, large and small, to a square yard, 12,-390,400 human beings. Thus the swarming population of the United States could be crowded, without inconvenience, into a square mile, and could be walked round in an hour. In like manner the host of Xerxes, of which the Grecians represent one end as seeing the sun rise, and the other as seeing him at the same instant set, could have been ranged in close order on a field of a hundred acres, and could have all heard the voice of the speaker. The inhabitants of the whole earth, about nine hundred millions, would not fill a circle of ten miles in diameter; they might, therefore, be ridden round in an hour, and might hear a bell placed in the centre. The whole race of mankind might thus be swallowed up in one earthquake, and not one be left alive to record it in a newspaper, or any body but himself to read it if he were. Every human being upon the face of the earth might not only stand but sleep within the boundaries of London, and have plenty of room to kick his neighbor out of bed. And the whole multitude of mankind thus standing within a circle ten miles in diameter, and holding hands, might be struck dead in an instant by a single shock from a galvanic battery. What a beautiful experiment for Caligula!—*New Era.*

From the N. Y. Evening Post.

THE ELECTRIC MAGNETIC MACHINE.—We learn that some recent improvements have been made in the application of electricity as a moving power to machinery. A larger apparatus than the one hitherto exhibited, has been constructed under the direction of Mr. Cook, now in this city, which is to set in motion a turning lathe, in order that those who take an interest in the invention may see it at work. Nothing but the difficulty of the times now stands in the way of demonstrating the application of this power on a large scale, to machinery of the most ponderous description.

It is to be hoped that the means for doing this will soon be obtained; it is to be hoped for the interests both of science and humanity. The application of this new principle of motion, if successful, as we have but little doubt it will be, is one of the most wonderful inventions of the age, and will hand down the name of its discoverer to future times along with those of Franklin and Fulton. It will furnish a power procurable, with the greatest cheapness and facility, in quantities to suit machines of any size, manageable with the greatest ease, and free from any danger except such as necessarily belongs to rapid motion produced by any cause.

Had this discovery been brought before the public ten years, or even a year ago, we should probably ere this have seen the electric fluid driving boats and turning spinning jennies. We understand that the proprietors of the invention offer very liberal terms to such as are disposed to contribute to the means of carrying it into effect.

STEAM NAVIGATION.—The last Edinburgh Review, has an article attempting to demonstrate the impracticability of using steam with advantage between Liverpool and New York, until means shall be devised for improving the construction and management of steam-vessels—the quantity of fuel now required forming an almost insuperable objection.—It is doubted by the writer whether, after all, the present splendid packet-ships are not preferable in general to any steam-vessel for crossing the Atlantic—especially as he urges that the gain of time would not probably be as great as is commonly supposed. It appears that the average of passages made by the packets between New York and Liverpool, to and fro, 3,200 miles, are at the rate of nearly five miles an hour—and that the British government steamers between Falmouth and Malta, 2,000 miles, cannot safely calculate on more than six miles an hour. If steam is to be employed in crossing the Atlantic, he argues that the route should be between Halifax and the west coast of Ireland, distant about 2,200 miles. There is certainly much consideration due to the suggestions of the *Reviewer*; and perhaps it is not too much to believe that all the objections raised against steam navigation may be obviated by the successful application of another power (electro magnetism) through the ingenuity of the yankee blacksmith, Davenport.—*Roch. Daily Adv.*

The forms of good breeding have been properly compared to the cotton and other soft materials placed between china vases, to prevent their being broken by collision.